

# DRAGON USER



The independent Dragon magazine

July 1986

## Contents

### Letters

Are your opinions about the whole Dragon world before the eyes of thousands?

### People's Chart

Find out what programs everyone else is buying — and send us your top five — you could win £25!

### News

The future of your Dragon — we ask the experts — Is your computer — 8000 communication covered?

### Communication

We don't have all the answers — but you might find someone who does in our problem solving column.



### Dragonsoft

Three new games for Monodisk — you need it in the house!

### Games

Machines code acceleration — paddle your way to victory in this game

### 2 Disc Drives

Are you thinking of upgrading to a Disc Drive? Read this first — it contains some invaluable advice.

### Dragon Answers

Brian Clegg collects his usual assortment of weird and strange and puts them back on the straight and narrow.

### 15 Journey Planner

There is a useful program for the summer holidays — plan your car journeys on your Dragon. Try it and see!

### 18 Graphics

Peter Whittaker's latest addition to his Touchwriter Graphics software — go he wrote his own. This is it!

### 24 Arcade Arena

Who is that man? What is his name? How much are we paying him? This month's entry is Jet Set Willy map.

### 26 Adventure Trail

Steve Garsden has again — with his usual batch of news and tips for dedicated adventurers.

### 30 Competition

Stretch your arms — with this month's poster set by Gordon Lee. How does he do it?

## Editorial

WELCOME to the new Dragon User. By Subscription Only DU's regulars and the heart of the Dragon community in Britain, with many nerves and arteries reaching overseas to Europe and beyond.

Gameplayers, serious programmers, and users experimenting with system design and communications have found the Dragon (which is the only popular 6809 machine in the UK) a powerful and versatile tool and a good companion. Good enough to stick with despite the competition.

Now the Dragon world needs to stick together, keep the news circulating and ideas developing. Write to us about your User Group, show your copy of Dragon User to other Dragon owners, who may have missed their chance to subscribe through lack of foresight (or funds), so that they know that Dragon's own forum is still going strong.

Remember — if you want to subscribe, nothing could be easier. Send off £14 (in the UK) or £20 (overseas) to Dragon User, 19/21 Little Newport Street, London WC2E 7EP for 12 issues.

### How to submit articles

The quality of the material we can publish in Dragon User will depend on a personal judgment, based on the quality of the document in that you will pitch with your Dragon. The Dragon computer was created to be in contact with a powerful version of itself, but with every piece of information.

Article pitch: All articles in Dragon User publications should not be more than 2000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should wherever possible be complete printed on a 12-page paper and be accompanied by a tape of the program.

We cannot guarantee to return every submitted article or program submission, so if you want to have your program returned you must include a stamped addressed envelope.

Telephone number  
(All departments)  
01 407 4545

Editor  
HELEN ARMSTRONG

Production Editor  
SARAH JACK

Associate Editor  
JOHN COOK

Editorial Secretary  
ANNE MARIE O'DWYER

Advertisement Manager  
RONALD LANGSTON

Administrative  
DEBORAH SMITH

Managing Editor  
PETER MCNAMARA

Publishing Director  
JENNY FRALAND

Subscriptions  
UK £14 for 12 issues  
Overseas (surface) £20 for 12 issues  
£20.00 £17.00 (airmail £26.00)  
Dragon User 19/21 Little Newport Street  
London WC2E 7EP  
US address: c/o Business Press  
110 Madison St, Kent, Kent, NY 10533  
Published by Satellite Books Ltd Press  
1st (London) Books 1986  
Typesetting by Chatham Press, Chatham  
Books  
Registered at the Post Office as newspaper  
Dragon and its logo are trademarks of  
Chatham Books

# Letters

## Puzzle Query

I AM AN avid fan of your computer magazine. Many of us readers will have only a small chance of winning but I am pleased we have education and incentive to complete the programme we would like to implement by getting more information to be used. Not just those who need machines — often it may have some idea. Others may be brilliant but interested — why not give them the pleasure of learning from the experts' method?

Dave O'Byrne  
23 Seagull Lane  
Consett  
County Durham DH8 2EF

If we get enough information for this, we will ... (ed. what should we do to make the space?)

Please don't feel neglected if you send an SAC but don't get a reply. You doesn't support enough editors to write personally to all our readers — so we concentrate on urgent questions — where we are able to find an answer, then in A good form of support is for readers to send us any information about problems-solving or software news.

## Screen Change

IN ANSWER to Alan Green's letter (Dragon User Dec '85) the program listed at the bottom of the page will convert the text screen to green on black. This C64 command is also applied but the CLEAR key and the PSET#1 option will result in a green screen.

Has anybody had any luck with Split? I am currently working on the program using several methods but each time I just get an irritating flicker.

80 CLEARPOSS 32608  
29 POKE=32547 TO 32608  
RENAME  
20 POKE "VAL (.BH)"  
AS: HEXT  
40 POKE=0 TO 127 PRINT

This is the address to my port viewer — send your tips, comments and corrections to Letters,  
Page, Dragon User, 13-15 Little Thrapston Road, London NW10 1PR.

42 2.CHR(0)  
80 POKE=32607 POKA  
(HEXT)  
80 POKE 320 128 POKC  
320 127  
76 POKC 281 28 POKC  
416 125  
80 POKE 417 127 POKE  
416 126  
99 CCLS  
100 DATA .32 .62 .34 .38 .86  
.86 .81 .8 .29 .0 .86 .4 .6  
27 .86 .86 .86  
119 DATA .47 .64 AT .82 .28  
.15 .81 .10 .26 .4 .80 .29  
.28 .0 .40 .28  
120 DATA .8 .10 .86 .27 .70  
.48 .86 .49 .47 AT .86  
.86 .86 .86 .86  
121 DATA .FF .23 .11 .86 .4  
.8 .86 .86 .86 .86 .86  
86 .86 .86 .86 .86 .86  
122 DATA .FF .87 .86 .86 .86 .86  
.86 .86 .86 .86 .86 .86  
123 DATA .FF .28 .86 .29 .27  
1 .28 .25 .18 .86 .84 .83  
.28  
124 DATA .FF .08 .28 .76  
.86 .76

Paul Barron  
15 Moorcroft Road  
Sheffield  
S10 4DF

## Tandy club

FIRSTLY THANKS for an excellent mag it is nice to have someone tell cases. I own a Tandy CoCo2+ I have had it for 2½ years and have been trying to sort out all that Jerry. Now the complaint. How come the CoCo needs such a reaction? At least half of my room of my readers are Tandy owners. So please don't forget us.

Secondly — come on you programmers, don't forget us either. More about writing your programs for the CoCo as well as the Dragon. I know Shady and Macintosh have. But that is about all.

Thirdly I would like to start a CoCo Dragon Users Club in the Bedford area. To swap programs ideas etc. Anyone interested please contact me at the address as shown.

Cheer again Dragon User  
keep up the good work.

Mr S. J. Falcon  
167 Sparrow  
Luton  
Bedfordshire  
LU1 3BT 0582 3880

## Monitor Bug

THANK YOU for publishing my MONITOR program. Although neatly there is a bug in the program so that the COPY routine will only work on the graphical pages. To fix the bug use the <Address locate to look at \$4074 into memory locations \$4074 to \$407F. Sorry for any inconvenience that they have caused people.

Peter Whistler  
13 Newgate Street  
Cambridge  
CB2 2RD

## Nice one Roy!

I AM WRITING to compliment Roy Collier on his Jet Set Willy Ad in Spectrum owners [one of them anyway] as well as a pic [because of the seven screens [not the last one]] from the Spectrum. I bring nothing I only take out of the fingers from the keyboard.

All in all the game is great and he never gets decent Collier looks just as good and less great to show the dragon as far from destroyed if you look at it a more size that even like what N.T. Butler said in his letter to the autistic community. You support us and we will support you.

PS I think the Dragon User should not be Dragon King as the good were

J. Dodge  
27 Carlton Avenue  
Cheadle Hulme  
Cheadle  
Cheshire  
SK8 2EP

## Hacking Mad

ONE PROGRAM I have been trying to hack for the past few months I am glad to say I have finished. The program I've picked is typed before most being released and the source

gives the code command to make itself instead of printing your strength it instead your strength is as important. This has advantages if you get very tired from it by being hacked by someone, or if you need to make it start jumping

POKE 2813,104  
POKE 2814,255  
POKE 2815,121  
POKE 2816,15

POKE 2818 (two button steps of it — maximum number of points required)

or  
machine code:  
LDA 286  
STA 285

Simon Margrove  
Crawley Mill Farm  
May  
Dorking  
Glen  
GU11 5SF

## Holy Days

I HAD BEEN doing a fair amount of research into the Yorkshire Parish Records till of course I TSO March 28th 1986 with a change date [See T. Bostock's letter May 1986].

The understanding that at the time and as used to be in a good position to know [I wouldn't put it any more strongly than that — Ed.]

...against nothing can anybody tell the where Xmas day was held celebrated as a holy day as almost of the whole time has been baptised interred and even buried on 25th December.

Dave Greenhalgh  
12 Parker Crescent  
Southgate  
Middlesex NW11 6BD

## Apology

THE Blackadder ad should not have appeared in the May issue. Our sincere apologies to anyone who was inconvenienced by this mix-up, no less to Monotype themselves.



# News desk

If you have any news products for the *Dragon* — software or hardware — ring the Rivers Desk on 01403 61451.

## Your Dragon — The Future

NOTE THAT *Dragon User* is appearing at its regular newsletter time with added items of the Dragon's business and supporters, how they view their industry with the benefit of the 10,000 *Dragon* users to *Dragon* User's regular and occasional visitors provide enough stimulus to a person like myself, but be longed to make from telling before critical population levels as a commercial proposition?

Comparatively, Ted Clegg could not have had it better. "We're still making money out of the *Dragon*. We've been on since it arrived. It's the only popular 8080 machine in the UK, and its strengthened our position in schools and colleges, so we shall continue to support it for as long as we can."

"But we're serious about the upper end of the market now. I think, game players will be interested. We've sold hundreds of *Dragon* Plus units at £199.95 a copy, but I don't see where else we can go after the *Dragon* Plus. I can't see the Hard Disk Drives becoming

truly popular until hard disk prices come down which is still way in the future."

"There's going to be a spate of shortages. We've got out of replacement hardware — there's got to be more to tell everyone to make sure all their leads and property are fitted and the connections in the right way round. We lose money on repairs and recoveries are running out of steam."

Has he heard from Eurobird in Spain?

"They've closed their Madrid premises and withdrawn from the market. I've had a 1980 press kit but updating prices isn't available. I can't get through to anyone there but it's not all that gloomy — the *Dragon* has been around for two years longer than anyone predicted and there's going on with it."

Jerry Bates of Stacy Software and Jenny Pope of Microdata were both available, though, Ted Clegg's predictions they had plenty of new games coming along and *Dragon User*'s associations

## Convention Report

THE FIRST 8080 convention was held on Saturday and Sunday at the midshift in April in the massive hall of the Unilever buildings in Manchester. Most of the regular exhibitors were present and several guest speakers were invited.

The speakers on Saturday included a very high-profile talk by Steve O'Donnell of Comshare on the nature of his segment OS-9, a very well-received talk on programming techniques from Gordon Ward (who incidentally runs a cheap and efficient repair and upgrade service on 061-652 0320) and an absolutely excellent session by Keith Roan of Sinclair Housa.

Sunday opened under an atmosphere of disappointment from the speakers who, on the whole, far apart really from Microdata, were not telling us much as they had hoped most of them said that they

would attend the next convention, but that they could not make it available in London than in two hours of Ward's in a nutshell.

The show atmosphere was in an element where the floor was covered to general disuse and every component of computer in a difficult situation (as unthinkably as that of the *Dragon*) could be seen.

The awards were presented by Broken Dragon's ambassador Roy Costa and the Roogies of the Year award, which was given to Microdata's rather unconvincingly for *Shoreline*.

And that was it. One more member in the company but for the choice a communal enjoyment.

I thought the convention was an improvement on the previous shows and would like to see it in London soon. But if you disagree, you know the address.

J.D.



would be hearing about their permission to use. The *Dragon* mailing people that *Dragon User* won't be on the same plane," said John.

"None of them are a full set pleased about what's happened." As is explained on the meeting front page, Jerry reminds everyone again that Microdata are organising the 8080 Show at the Royal Horticultural Hall in Victoria, London on 22nd November. More information from Microdata on 081 562 0620.

Last Hippoviews came from Melbourne House — responsible for *Dragon User* products now in the April edition. Microdata have used up their stocks of *Ever last* *Dragon* and won't be releasing the

game, but they hope to release some copies for the remaining visitors.

Problem solvers company Broken Dragon Ltd are still struggling to sort out their banking difficulties with Tel 01638 problems according to the Birmingham Consumer Service. Some users have received replacement games but are still having trouble with the program. The company simply can't afford to shell out the rest from the BCC. What a tragic, will be a good idea.

## Practical Programs

PRACTICAL programs for small businesses are the new specialty of Warrington software publishers Blue Software. They are offering an information pack on their software plus a discount of £1.50 on the £15 packages until 20th July 1982. Most of the 5.25" disks can use one another's data files and are packed in 25s.

For information send a 17p stamp or SAE to: Semiconductor Ltd, Blue Software, 15, St Stephen Road, Preston, Lancashire, PR1 7RH. Details of the software are:

Utility: There is a choice of straight or curved vacuum pipe and all pieces of reasonably brush. Useful for any one who does repairs or other messy work.

Min Vac costs £11.95 including VAT and postage from Authority, P.O. Box 842, Worcester Park, Surrey KT4 7HY, or from specialist and hardware stores.





# Dragonsoft

## Underwater

Program: Aquanaut 471  
Supplier: Microset  
Price: £3.99

Third best of the three new Microset releases under the sun I've seen is the adventure which is still underway. The game starts off by asking you if you want to start hunting or end when you'll be surprised by an underwater explosion. You go off to investigate and find yourself in an under water complex trying to pass the piece from a wacky device.

Thinking in mind that you're downstream it's clear the device has got particularly helpful indeed there are two sets of them and if you're not sceptical in the physics you'll

get sent back to the entrance again!

I try quick on the joystick because this is a surreal unusual adventure in many ways. The graphics (one game in split screen — top half for graphics bottom half for text) are very unusual in their style although they do have a certain clarity after the player is accustomed to them. The game runs like an adventure with the very useful facility of being able to move with the mouse keys (it's Synergic) but suddenly an enemy at certain locations the player is required to play a very simple arcade game to progress. No doubt it's all aimed some people but I found it frustrating and the game however the advantage of being separate does a game has been compromised there is, very little problem in doing it again and

## Timely

Program: The Voice Factor  
Supplier: Microset  
Price: £5.99

This is the other new offering from Microset and is by far the better. It's much more serious as an indication of its quality. Where Aquanaut was about space travel this one concerns itself with time travel and is again a very good game.

I haven't finished it would you believe. I need a flight. You the old chestnut is a problem as in there and I can't find a solution so far yet it's harder than Aquanaut about the same standard of difficulty as Timecop in fact so if that was your level you'll enjoy this one

most of the stuff you need to get started. To give a bit of help just click on the start key closing doors behind you and also studying a bit of Physics.

The format is standard graphics of the top (with some objects partially) and text below the vocabulary line and the keyboard responses very good.

There is no HELP option but the SPLIT and LOAD work very reliably. However there is a problem with the adventure due to what I can only assume is American origins. By



The game starts with you in a mission full of interesting combat in a cold, noisy round examining everything. More than once it has to become a trampolin and you'll have

## Mountains

Program: Rommel 3-D  
Supplier: Microset  
Price: £3.99

IF THIS IS a sort of game I love to review about another it's a whole copy. This means everyone knows what sort of game they are although in my "Bibliography of Rommel's Revenge" I've said myself I had two paragraphs of only describing the game and all that remains is to comment on quality as a commodity and give it a rating.

In the introduction John Barnes said so too that this game was simply better than "Rommel's Revenge" and he said it wasn't he wouldn't have put it out.

The trouble is I can't think

6 Dragon User July 1984

New software, as well as present issues, can be bought direct from Dragon User, 12-18 Highgate, London NW3 7RH, TEL: 01-348 2144.



You never know where you are!

THE EARNING SPREE

again first time.

The adventure itself is extremely difficult to solve but is very good fun to play. Especially pleasing is the section involving finding a police officer I spent a couple of afternoons research though to solve this one and can recommend it as an introduction to adventuring and Map making as it's fairly straightforward.

This is a hard set of adventures I could quite easily play while sunbathing! I have had really nice relaxed days which come as more as being set in an original environment. As you may have guessed I like it.

JASON ORBISON



solving the problem I could be accused of giving a big clue to the adventure but it's rather like one of the key objects cannot be reached until it is revealed that in numerous American sites over almost month's run day than year as Hitler would be discovered in American homes. I hope I won't receive a part of the adventure for those smuggling but I was, in fact, forced to employ such strategies when I finally cracked it as I feel that an adventure should have everything within it necessary to

solve it and should not rely on pieces of mine. For the solution to this problem in question I'd like to publicize there is a thread of news although I have no idea how it was posted.

To sum up then another good adventure, marred only by the recent mentioned problem and need to refresh abilities returning until I finish it. I hope that others produce more adventures and soon!

JASON ORBISON



actually is better than "Rommel's Revenge". Yes it's harder and yes there are many times when the grace of the forest would be lost forever but this game simply doesn't have the right feel of the original and "Rommel's Revenge" has it.

Rommel 3-D is more relaxed and is by my standard a good game. It offers a choice of colours — yes you can play this one green on black — and the sound is slightly better. The problem is it's too fast. It has turned what was originally a tactical battle game off a fast a leisurely session of guerilla war completely unless when you're at moving games.

The game also fails to pick up all of the elements of the arcade. It offers tanks, planes, and armoured cars. I don't know if the planes are the missiles or

saucers or the original as I've never heard long enough to see one — the game is there but the tanks are dreary! No doubt The Expert has blazed the way into the micros as it now and will return as all though his next assume what they are (admittedly word has reached me that someone has, I am The Expert can I state here and now that the day my English degenerates to the level I shall pack up writing altogether?)

So the game is good and if you like "Rommel's Revenge" Bonnies he could be the weapon you want but if you want a precise copy of the arcade game this isn't the one!

JASON ORBISON



# Down The River

M. Croucher creates a canoe challenge

North-English paddling about boats. And Croucher is an ideal trip on a wet afternoon. You don't have to unpack your kayak, just type in the BASIC loader and hit **RETRIEVE LOAD AND SEARCH**.

First enter the BASIC file loader and when complete, type **RUN** to begin.

The screen will show eight blocks and displayed on screen is the track number and address. Type in the relevant line of data and the cursor will be displayed after every two digits have been entered, so there is no need to enter them separately. The last button is a check sum and this should be altered until the 'T' present if it is zero has occurred then the address and its displayed again and the line of data will move to be reentered.

When all the data has been entered the program will be saved to tape ready for you to use. A copy can be had, a cassette from M. Croucher, 14 Milldale Road, Prospect Park, Newark, New Jersey 07104, price \$12. It's eight blocks of data, seems like a lot of typing.

Use **CLDA000** to load the program. Once loaded, type **1000** to start the game. You have a choice of red or green barrels. For safety with black and white TVs a green canoe only is recommended.

The objective is to paddle your canoe as

fast as possible trying to get through the gates without touching the marker flags. If you reach the finish line in the time allotted you can proceed to make the second race. This river, because of the banks and rocks in them will limit your choice. You have three choices to travel as far as possible. A certain point is awarded for each gate successfully negotiated, but all bonus points are lost if a flag is hit.

The right joystick is used to control the canoe. Moving it from right to left will move the canoe forward. Trying to paddle too fast will result in the increased paddling speed and the canoe will go out of control.

The tree slowed and the distance between the gates can be changed with the following codes:

**POKE BH4011 No**

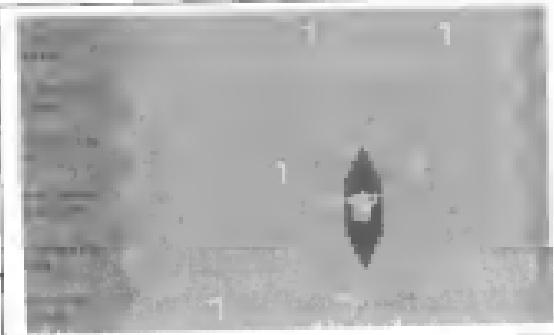
**POKE BH4012 No**

Where No is the distance required between the flags. **0=No<100** (Default setting is 64).

**POKE BH4709 No**

**POKE BH4724 Port**

Where No and Port1 are the first two digits of the time required. (Default setting No=1 Port1=3). Once reached, press any key to start a new game.



```
10 PCLEAR : I
20 CLEAR 200,SH02FF
30 FOR BL=1 TO 8
40 READ ST,BH
50 CLS:PRINT "      HEX LOADER":PRINT "-CANCELE - BLOCK ";BL,
60 FOR ADD= ST TO EN STEP 10
70 PRINT HEX(ADD):OD=0
80 FOR EXP= 0 TO 9
90 CSUBS 200,P0K6 ADD+X1,WAL,I$H"+$H
100 CD=OD+VAL,I$H"+$H
110 PRINT " ",I$HNEXT:INPUT AT
120 IF VAL>I$H+EXP:OD THEN CSOUND 200,3:PRINT "-ERROR- REGO":GOTO /0
130 NEXT:NEXT
140 CLS:PRINT "SET UP CASSETTE AND PRESS ANY KEY"
150 IF INKEY$="" THEN 100
160 CLS:PRINT "NOW SAYING CANOE"
170 CSWEFT("CANOE",BH2400,SH0200,SH1000)
180 PRINT "PRINT 'CANOE SAVED BYE'"
190 END
200 AT=INKEY$:IF AT="F" THEN 200
210 IF (AT)>"F" AND AT<"W" OR (AT)>"O" OR AT>"P" THEN 200
220 PRINT AT:BE=0
230 AT=INKEY$:IF AT="F" THEN 200
240 IF (AT)>"F" AND AT<"W" OR (AT)>"O" OR AT>"P" THEN 200
250 BE=BH+BE
260 PRINT AT:
270 RETURN
280 DATA BH2400,SH0200,SH1000,BH2000,BH1000,BH0200,BH0000,SH41AF,SH4300,
290 BH727,BH4000,SHACM8,SH4D00,SH4700,BH4F00,BH0017
```

卷二十一

**Data Block 2**

0001	0002	0003	0004	0005	0006	0007	0008	0009	0010	0011	0012	0013	0014	0015	0016	0017	0018	0019	0020	0021	0022	0023	0024	0025	0026	0027	0028	0029	0030	0031	0032	0033	0034	0035	0036	0037	0038	0039	0040	0041	0042	0043	0044	0045	0046	0047	0048	0049	0050	0051	0052	0053	0054	0055	0056	0057	0058	0059	0060	0061	0062	0063	0064	0065	0066	0067	0068	0069	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	0090	0091	0092	0093	0094	0095	0096	0097	0098	0099	0100	0101	0102	0103	0104	0105	0106	0107	0108	0109	0110	0111	0112	0113	0114	0115	0116	0117	0118	0119	0120	0121	0122	0123	0124	0125	0126	0127	0128	0129	0130	0131	0132	0133	0134	0135	0136	0137	0138	0139	0140	0141	0142	0143	0144	0145	0146	0147	0148	0149	0150	0151	0152	0153	0154	0155	0156	0157	0158	0159	0160	0161	0162	0163	0164	0165	0166	0167	0168	0169	0170	0171	0172	0173	0174	0175	0176	0177	0178	0179	0180	0181	0182	0183	0184	0185	0186	0187	0188	0189	0190	0191	0192	0193	0194	0195	0196	0197	0198	0199	0200	0201	0202	0203	0204	0205	0206	0207	0208	0209	0210	0211	0212	0213	0214	0215	0216	0217	0218	0219	0220	0221	0222	0223	0224	0225	0226	0227	0228	0229	0230	0231	0232	0233	0234	0235	0236	0237	0238	0239	0240	0241	0242	0243	0244	0245	0246	0247	0248	0249	0250	0251	0252	0253	0254	0255	0256	0257	0258	0259	0260	0261	0262	0263	0264	0265	0266	0267	0268	0269	0270	0271	0272	0273	0274	0275	0276	0277	0278	0279	0280	0281	0282	0283	0284	0285	0286	0287	0288	0289	0290	0291	0292	0293	0294	0295	0296	0297	0298	0299	0300	0301	0302	0303	0304	0305	0306	0307	0308	0309	0310	0311	0312	0313	0314	0315	0316	0317	0318	0319	0320	0321	0322	0323	0324	0325	0326	0327	0328	0329	0330	0331	0332	0333	0334	0335	0336	0337	0338	0339	0340	0341	0342	0343	0344	0345	0346	0347	0348	0349	0350	0351	0352	0353	0354	0355	0356	0357	0358	0359	0360	0361	0362	0363	0364	0365	0366	0367	0368	0369	0370	0371	0372	0373	0374	0375	0376	0377	0378	0379	0380	0381	0382	0383	0384	0385	0386	0387	0388	0389	0390	0391	0392	0393	0394	0395	0396	0397	0398	0399	0400	0401	0402	0403	0404	0405	0406	0407	0408	0409	0410	0411	0412	0413	0414	0415	0416	0417	0418	0419	0420	0421	0422	0423	0424	0425	0426	0427	0428	0429	0430	0431	0432	0433	0434	0435	0436	0437	0438	0439	0440	0441	0442	0443	0444	0445	0446	0447	0448	0449	0450	0451	0452	0453	0454	0455	0456	0457	0458	0459	0460	0461	0462	0463	0464	0465	0466	0467	0468	0469	0470	0471	0472	0473	0474	0475	0476	0477	0478	0479	0480	0481	0482	0483	0484	0485	0486	0487	0488	0489	0490	0491	0492	0493	0494	0495	0496	0497	0498	0499	0500	0501	0502	0503	0504	0505	0506	0507	0508	0509	0510	0511	0512	0513	0514	0515	0516	0517	0518	0519	0520	0521	0522	0523	0524	0525	0526	0527	0528	0529	0530	0531	0532	0533	0534	0535	0536	0537	0538	0539	0540	0541	0542	0543	0544	0545	0546	0547	0548	0549	0550	0551	0552	0553	0554	0555	0556	0557	0558	0559	0560	0561	0562	0563	0564	0565	0566	0567	0568	0569	0570	0571	0572	0573	0574	0575	0576	0577	0578	0579	0580	0581	0582	0583	0584	0585	0586	0587	0588	0589	0590	0591	0592	0593	0594	0595	0596	0597	0598	0599	0600	0601	0602	0603	0604	0605	0606	0607	0608	0609	0610	0611	0612	0613	0614	0615	0616	0617	0618	0619	0620	0621	0622	0623	0624	0625	0626	0627	0628	0629	0630	0631	0632	0633	0634	0635	0636	0637	0638	0639	0640	0641	0642	0643	0644	0645	0646	0647	0648	0649	0650	0651	0652	0653	0654	0655	0656	0657	0658	0659	0660	0661	0662	0663	0664	0665	0666	0667	0668	0669	0670	0671	0672	0673	0674	0675	0676	0677	0678	0679	0680	0681	0682	0683	0684	0685	0686	0687	0688	0689	0690	0691	0692	0693	0694	0695	0696	0697	0698	0699	0700	0701	0702	0703	0704	0705	0706	0707	0708	0709	0710	0711	0712	0713	0714	0715	0716	0717	0718	0719	0720	0721	0722	0723	0724	0725	0726	0727	0728	0729	0730	0731	0732	0733	0734	0735	0736	0737	0738	0739	0740	0741	0742	0743	0744	0745	0746	0747	0748	0749	0750	0751	0752	0753	0754	0755	0756	0757	0758	0759	0760	0761	0762	0763	0764	0765	0766	0767	0768	0769	0770	0771	0772	0773	0774	0775	0776	0777	0778	0779	0780	0781	0782	0783	0784	0785	0786	0787	0788	0789	0790	0791	0792	0793	0794	0795	0796	0797	0798	0799	0800	0801	0802	0803	0804	0805	0806	0807	0808	0809	0810	0811	0812	0813	0814	0815	0816	0817	0818	0819	0820	0821	0822	0823	0824	0825	0826	0827	0828	0829	0830	0831	0832	0833	0834	0835	0836	0837	0838	0839	0840	0841	0842	0843	0844	0845	0846	0847	0848	0849	0850	0851	0852	0853	0854	0855	0856	0857	0858	0859	0860	0861	0862	0863	0864	0865	0866	0867	0868	0869	0870	0871	0872	0873	0874	0875	0876	0877	0878	0879	0880	0881	0882	0883	0884	0885	0886	0887	0888	0889	0890	0891	0892	0893	0894	0895	0896	0897	0898	0899	0900	0901	0902	0903	0904	0905	0906	0907	0908	0909	0910	0911	0912	0913	0914	0915	0916	0917	0918	0919	0920	0921	0922	0923	0924	0925	0926	0927	0928	0929	0930	0931	0932	0933	0934	0935	0936	0937	0938	0939	0940	0941	0942	0943	0944	0945	0946	0947	0948	0949	0950	0951	0952	0953	0954	0955	0956	0957	0958	0959	0960	0961	0962	0963	0964	0965	0966	0967	0968	0969	0970	0971	0972	0973	0974	0975	0976	0977	0978	0979	0980	0981	0982	0983	0984	0985	0986	0987	0988	0989	0990	0991	0992	0993	0994	0995	0996	0997	0998	0999	0999
------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

Digitized by srujanika@gmail.com

Digitized by srujanika@gmail.com

Page 10 of 11

故其子曰：「吾父之子，其名何也？」子曰：「汝勿外。」子曰：「吾與汝皆不外。」

10 of 10

Page 10 of 10

# DRAGON USER SUBSCRIPTION OFFER

From the very next issue (July) Dragon User will be available by SUBSCRIPTION ONLY! No more tramping to the shops come rain, wind or snow — we'll deliver it straight to your door.

Normally, this would cost you £14 (UK) for the privilege of receiving 12 issues (£20 outside the UK) — but for new subscribers applying on this form (or a facsimile thereof), we're offering a year's sub for £12 only. (£18 outside the UK)

Fill in the form below, and send it off together with your remittance to —  
**Dragon User Subscription Offer — 12-13 Little Newport Street, London WC2H 7PP**

[View review on The Internet](#)

- 1 year's subscription to Dragon User (12 issues)  
Normally £14 — This model £10 (UK only)
  
  - 1 year's subscription to Dragon User (12 issues)  
Normally £20 — This model £16 (UK only)

BRUNNEN

[View Details](#)

Digitized by srujanika@gmail.com

- I enclose a cheque payable to Scott Press Ltd

I enclose a postal order (payable to Scott Press Ltd)

Please charge my Access/Barclaycard Acn:

Send this form with your payment to:  
Dragon House Business Centre, Office  
12-13 Little Newport Street,  
London WC2A 4BP

Locavore

100

# Choosing a Disk Drive

A disk drive is a major investment — plan before you buy, advises Geoff Entwistle.

DUE TO the success of the Dragon as a games machine many loyal users have become to buy disk drives because operating in various computer magazines. However, there is more to a bargain than the price factors such as the suitability of the equipment to perform the tasks required of it, availability of software and its compatibility with other systems must also be considered. The problems the enthusiastic amateur can become involved through lack of knowledge. There is little written information and what is available tends to be in the form of snippets in articles or advertisements. There is therefore a need to collate and present the pieces of information gathered from these various sources to help the user gain informed nothing up to date is more popular choice. Adding by the standards of choices in Dragon over many readers may find the contribution simplistic, but there are still need some light reading from time to time!

## The System

There are three parts to a disk drive system to be considered:

- (a) The disk drive
- (b) The disk operating system (DOS)
- (c) Software

Although I will consider each separately the system as a whole needs to be designed and evaluated against the particular tasks that it will be expected to undertake.

Before looking at disk systems it is wise to ensure we appreciate the benefits of data over cassette tapes for storing data and programs.

- (a) Files are read and written to disk ten times faster. A disk rotates at 300 rpm.
- (b) As files are absolute consecutive logical address it is possible to directly access files whereas a tape needs to be sequentially searched.
- (c) A tape system writes and keeps a catalogue in directly of the files on each disk.

The disk system therefore comes into its own when considering the handling of data files. Everyone who has attempted to use cassette tape files has probably experienced errors arising from the slow speed of reading the duration of the leader tone. No such problems with disk drives. Different types of disk can be accessed separately and at the same rate relative to disk size, a random file is possible to jump around the disk for specific items. This type of random

access file allows for parts to be updated whereas a cassette file would need to be totally rewritten.

The simplest analogy for comparing disk and tape storage would compare an LP with a music cassette. Once a track on an LP has been recorded the user can't be forced to play it in that track. When another track is played the user can't be involved in the new location. It is difficult to perform the same regime with a tape as it is difficult to identify where one track ends and another starts. Although the higher speeds of fast forward and rewind can be used to move to a new track, the tape still needs to be sequentially searched.

How far some definitions. A disk can be single or double sided and can be either single or double density. Double density is also available but I have yet to see any suggestion that it can be used on a Dragon system. The number of sides needs no explanation except to confirm that a double sided disk can store twice on both sides so long as the disk drive being used is capable of such a task. The density of a disk defines the amount of data that can be stored on the disk. The greater the density the closer the information can be written on the disk and consequently the more data it can store.



Before a disk can store data it needs to be 'formatted'. This uses some of the storage capacity of the disk so it is advisable when comparing two different systems to ensure that the formatted capacities are compared. The formatting of the disk results in being divided into tracks and sectors. The disk operating system (the DOS) also writes essential information on the disk which will be used by the drive to find the desired programme or data file when the system is used. With the tracks and sectors numbered and a CDA table or

directory on the disk the drive can move rapidly to the location where the data is stored.

Each DOS system will format a disk differently affecting the capabilities of various systems. The formatting of a disk erases all data stored on it. It is therefore not possible to re-format a disk for another DOS without losing your data or files. How to consider the three principle parts of a disk system. The drive, the operating system (DOS) and the software.

## The Disk Drive

The task of the drive is largely self-explained from the above. It needs to rotate a platter (sides of material) the disk at high speed and be able to read and write data on it at every possible point. The cost of therefore is precision material. This needs to be remembered when considering the purchase of a second-hand machine. A cheap or damaged apparatus by an aggressive user could have caused damage which could be expensive to repair. Before purchasing a second-hand disk drive, see if the system format a disk while disk is it and read it.

Some drives such as Dragon drives are only able to use one side of a disk. Double-sided drives can be used in these drives but only one side will be used. This effectively halves the amount of information that can be stored on the disk. Double-sided drives such as some of the Commodore models are able to use both sides of a disk but some problems can arise as a consequence of the DOS which requires the double-sided capacity cannot be used. This will be considered. Other whilst disk operating systems but generally this is not a great hindrance to the double-sided drive as long as it formats a single-sided disk when required. Again the word is to check and if the system is able to format both types of disk then the versatility of the drive is enhanced.

When formatted a disk is divided into tracks. The standard choice is either 40 or 80 tracks per disk. The 80 track offering twice the storage capacity of a 40 track disk. The number of tracks that can be formatted on a disk is dependent on the characteristics of the drive. The DOS and the disk. Even at the data end the DOS's double density is 40 tracks since will not be able to format an 80 track disk. An 80 track disk is said on all 80 track disks it is important to check that an 80 track drive is able to read at 40 track disk before it is purchased.

To have the best of both worlds, high storage capacity plus being able to use it in a single disk system it is possible to fit two drives which are 140 MB each drive. This only problem posed by such drives is that the operator must remember to switch between modes for the extremely formatted disks. Another solution could be to check that the software houses you buy have the capacity to support two 140 track software and 90 track disks if requested.

Whether to purchase a single or dual drive is always based on expense rather than previous use that has been set as required by. There are various systems on the market used to make a choice purely on cost could result in understanding the usefulness of your disk system. By having a dual system it is possible to designate one drive as a system drive which will need the software being used while the other would be the work drive which would store the data being used. A simple example is to consider a word processing package. The first drive could contain the programs being used plus auxiliary files such as a spell check while the other could hold files of documents that have been or are being prepared.

If a vast amount of storage space is not required it is maybe more convenient to operate with two single-sided disk drives instead of a double-sided disk.

## Disk Size

The final aspect of the disk I process to concern is the size of the disk. Mike Jones (Computer Age, January 1980) suggested yet another measure of home and business computers: INCOMPATIBILITY. Years are currently there than sizes of disk at present: 5 1/4 inch, 3 1/2 inch, and 3 inch. Because of improved disk technology all three sizes hold approximately the same amount of data. The 5 1/4 inch disk is floppy, the casing is rigid and the disk is vulnerable to damage through its exposure at the read/write side. The 3 inch and 3 1/2 inch disks are enclosed in a moist rigid housing and this prevents static generated by a reader which is opened at the disk as inserted into the drive. Since 3 1/2 inch drives are compatible with 5 1/4 inch disk operating systems but again the switch would be to check the compatibility before purchase as it may render the disk of an incompatible speed.

Making the choice of disk size is difficult with much conflicting advice. The smaller disks are more used but this could result in significantly longer times being given enhancing the risk of damage. Mike Jones after discussing the relative merits of the different disk sizes felt that the 3 1/2 inch format held the most promise for longevity of lifetime.

As far as Dragon users are concerned Dragon User (December 1980) reported that Microdrive were planning to extend the range of Dragon disk drives available. At the present single-sided 40 track format whatever changes that are proposed to the single disk drives again reported as extending to兼容性 with the 5 1/4 inch disk.

If you propose to purchase a drive either then a 5 1/4 inch shade or the incompatibility of Software Check also, if you are not purchasing a total package then the drive is compatible with the disk operating system you proposed to use.

## Operating Systems

One Operating Systems (OS) appear to (1) ROM systems which interface with resident BASIC by adding disk handling commands, to Oregon, Delta and Compaq systems.

(2) ROM systems which replace the ROM BASIC of the Dragon with entirely new systems as the Plus System of Andromeda Data Design.

(3) Software based systems such as FLEX and C64.

The ROM-based systems offer to a varying extent features beyond those necessary for a disk interface by adding some utility in BASIC. For instance Compaq and Dragon DOS add such conveniences as AUTO for automatic file numbering, READ/COM command and WAIT to introduce a pause in programme. A useful alternative to FORTRAN loops. These additions are hardly sufficient reason to purchase the system but represent a little candy.

The Andromeda system, however, makes significant changes to the way the Dragon performs by adding new commands and enhancing the existing capabilities on disk. Intel 80 columns (See Dragon User November 1980) for a review.)

The software systems require a ROM system to be loaded. The ROM DOS then have a BOOT command or equivalent which will load sectors of the disk which then loads over the operating system.

The software systems are expensive but FLEX and C64 are relatively inexpensive and sophisticated making the operation of the total system much more friendly. They also offer an input to various software packages.

It is not necessary to have FLEX or C64 to use your disk system seriously but powerful software has been written for both these systems so identify the parts with you wish to use your disk system for and the software which will meet them and then they may indicate one of these systems are necessary.

If FLEX is chosen on Dragon 640 as necessary utilising PLUG bridge mentioned above is used when up-tilde to run FLEX on Dragon 32. An aspect of FLEX which may be disadvantageous software that fails with FLEX and not on any machine which uses it. For instance the BBC. For review of FLEX see Dragon User February 1980 and September 1980.

## Software

A problem which may crop up in using Germanic or Dragon DOS is that it is unable to BOOT a double-sided disk. This should not pose any problems, so long as you remember to format a single-sided disk when constructing a new system and unless you are a planner and accustomed

programmer without interest in soft were produced by others you will need to be sure that the desired software is available for the system you propose to use. Most games and popular software appears to be available for Oregon and Delta DOSes. More recently Compaq DOS has increased its profile since they switched from Delta DOS to producing their own with their name. Jason Crosson, Dragon User October 1980 reported that the 640s show that Compaq DOS is not true Dragon DOS although it is incompatible with it. This would suggest that software that is written for Dragon DOS will also run under the Compaq system. However, check your respective Dragon DOS like the 640s to be more compatible than earlier versions. Again as there is no effective antidote to incompatibility it is advisable to test and perhaps check for yourself the compatibility of the software and the DOS that you are using or proposing to purchase.

Pre-purchase research is a must, it is safe of time when considering the cost (or price) investment you may be making. There is no point buying a 5 1/4 inch drive even if it is compatible with a 3 1/2 inch DOS if software requires only supply the wrong ones on this when done.

The cost and availability of software varies also to be taken into account. For instance there is more software available to run with PLUG. Payment a modest retainer-amount earned in DRAGON USER issue 68 offered DOS releases at very competitive prices compared to the recommended retail price.

## Conclusions

It is a sad reality that Dragon support could become scarce in the country. The precarious economic situation in which the small computer firms operate is such that their demise could one day sound the death knell for them. There is therefore some wisdom in investing in equipment and software that can be used with other computer systems should this become necessary. Without checking all the compatibility which is not reliable because of the large number it is possible that incompatible incompatible and failed drives could be obtained. But operators seem to feel the disk does operate with the DOS of another computer or "will" software that runs under Dragon FLEX operates with FLEX on other systems? may offer some enlightenment which could help you ensure your investment could be partly salvaged should the Dragon cease to be had today basis.

Throughout this Thomas Cook has through disk drives and ancillary subjects the advice that should be listened to take a sensible approach. Ideally the tasks you predominantly need to undertake logic of the software and what it requires and to for possibly look into the future to ensure you are not investing in obsolete equipment. Lastly question checks and observe before parting with hard earned cash so that when you are all looking up all systems are ready to go.

Good luck for successful bargain hunting!



# Journey Planner

Get your Dragon to help you with your holidays with this useful program by Dr A. Daniels

THIS IS a totally original way to help you plan long car journeys. It stores and organises accommodation information, adds free maps and guide books. As it stands it has been designed for continental motoring holidays, with overnight hotel stops but I have listed below certain key areas which could be altered to suit your own requirements.

I have used it for seven years and find it very helpful and it is also fun to use on long-distance journeys.

Having programmed it you can travel on long distances and make savings from time or price if you.

As this is rather a long program I will send it for £10.00 but if you send an empty cassette and suitable stamp and addressed envelope to: A. Daniels, Reed, Headland

Ram, TN13 2AY — you can have it free.

Whether you type it or send for a disk next the Roman lines 20, 30, 300, 3000 and 4000 which contain essential information.

Here now is a note of the important lines and a schematic to explain the general arrangement:

## Line No.

200 — contains calculations for the average speed on different types of road as stated in the schedule.

400 — calculates the cost of travel to the nearest pound at 40 pence per £2 per litre. This can be adjusted for you may wish to work in miles or remember costing to fuel your car.

400 — per-hour fuelcost maybe too little or too much. You can alter this remembering

TW is the hour variable and TM the minute one. LO is just a flag set to make sure you don't keep having lunch throughout the afternoon.

620-630 — When the program is running and you want to correct an entry you must recall this line to the time of departure from the previous town which you will find displayed on the screen. Make sure you know which day you are in too.

680 — This is how the family travel but you must set yourselves. The 10 is added in line 6000.

690 and 695 — You may wish to put camping site instead of hotel.

The printer instructions are for a BROTHER QCP-110. Lines 1400, 1500 and 1600 may not suit other makes. In any case enjoy planning your holiday!

100 \* HOLIDAY BY NUMBER ONE 0100 - 17/3  
400

200 \* BEFORE STARTING ADDITIVE FORMULA FOR DETERMINING THE CORRECT DATE OF YOUR HOLIDAY IN LINES 1000 AND 1000 \* 1000 INPUTS  
600 THE TRUE DATE, '01/01/81' AS THE FIRST  
800 OF DAYS YOU HAVE BEEN AWAY

300 \* YOU MAY ALSO Wish TO ENTER SOME  
600 THE LINES BETWEEN 400-500 AS 1000 OR  
5000 (INSTEAD OF INPUTS WHICH HAVE TO  
BE FILLED IN EVERY TIME). THE PROGRAMME IS  
BUILT SO YOU WILL PROBABLY ONLY PLUG ONE  
HOLIDAY AT A TIME.

400 \* POLENTI CLEAR (2800)  
500 COUNTRYROAD, COASTAL, COASTAL,  
MOUNTAIN, MOUNTAIN, RIVER, RIVER

600 COASTAL, COASTAL, COASTAL, COASTAL

700 COASTAL  
800 COASTAL

900 PRINT OR TYPE HIGH TO RETURN THIS  
PRINTATION FROM CASSETTE OR Push A NEW TRIP  
T PRESS '1' OF THE

100 10-1000-1000-1000 00  
110 10-1000-1000-1000 00  
120 10-1000-1000-1000 00

130 COASTAL COASTAL

140 00-0000-0000-0000 00

150 INPUT HOURS : 00-1000-1000

160 10-1000-1000 00

170 INPUT MINUTES : 10-10-100-100

180 0-10-1000 00

190 INPUT STARTING DAY : 01/01/81

200 10-1000-1000 00

210 10-1000-1000 00-1000 00

220 INPUT METHOD OF TRAVEL : 0-0-0

230 CROSSING CHANNEL, PUT ON ONE ROAD

240 \* IF 'FLY DRIVE' - USE LINE 1000 AND USE A P 1000

250 \* IF 'FLY' - THEN PERCENTAGE COST IS  
260 \* TRAVEL AND \* THIS APPLIES TO THE COST  
OF FUEL, MOTORWAY OR OTHER TRANSPORT  
REFERRED TO IN 200

270 CLEAR PRINTSCREEN IN THIS SECTION  
TO ERASE PAGE THAT YOU WISH TO ERASE.

1700DISTANCE CIN KM FROM THE LAST PLACE  
800 THE TYPE OF ROAD YOU WOULD TRAVEL IN  
IS 00, AND ANYTHING OF INTEREST BEING  
ON THE WAY (POINTER)

200 COASTAL

220 POLENTI(HOLD HIGH TYPE) 1000; 10  
TRAILER - TRAILER(HOLD) 1000; 10  
IF 1000 YOU CAN RESET THE TIME OR COST OF  
MOVING,

250 10-1000-1000 00 THEN 000000-000000

260 0000-0000-0000-0000

280 0000-0000-0000-0000

290 0000-0000-0000-0000

300 0000-0000-0000-0000

310 0000-0000-0000-0000

320 0000-0000-0000-0000

330 0000-0000-0000-0000

340 0000-0000-0000-0000

350 0000-0000-0000-0000

360 0000-0000-0000-0000

370 0000-0000-0000-0000

380 0000-0000-0000-0000

390 0000-0000-0000-0000

400 0000-0000-0000-0000

410 0000-0000-0000-0000

420 0000-0000-0000-0000

430 0000-0000-0000-0000

440 0000-0000-0000-0000

450 0000-0000-0000-0000

460 0000-0000-0000-0000

470 0000-0000-0000-0000

480 0000-0000-0000-0000

490 0000-0000-0000-0000

500 0000-0000-0000-0000

510 0000-0000-0000-0000

520 0000-0000-0000-0000

530 0000-0000-0000-0000

540 0000-0000-0000-0000

550 0000-0000-0000-0000

560 0000-0000-0000-0000

570 0000-0000-0000-0000

580 0000-0000-0000-0000

590 0000-0000-0000-0000

600 0000-0000-0000-0000

610 0000-0000-0000-0000

620 0000-0000-0000-0000

630 0000-0000-0000-0000

640 0000-0000-0000-0000

650 0000-0000-0000-0000

660 0000-0000-0000-0000

670 0000-0000-0000-0000

680 0000-0000-0000-0000

690 0000-0000-0000-0000

700 0000-0000-0000-0000

710 0000-0000-0000-0000

720 0000-0000-0000-0000

730 0000-0000-0000-0000

740 0000-0000-0000-0000

750 0000-0000-0000-0000

760 0000-0000-0000-0000

770 0000-0000-0000-0000

780 0000-0000-0000-0000

790 0000-0000-0000-0000

800 0000-0000-0000-0000

810 0000-0000-0000-0000

820 0000-0000-0000-0000

830 0000-0000-0000-0000

840 0000-0000-0000-0000

850 0000-0000-0000-0000

860 0000-0000-0000-0000

870 0000-0000-0000-0000

880 0000-0000-0000-0000

890 0000-0000-0000-0000

900 0000-0000-0000-0000

910 0000-0000-0000-0000

920 0000-0000-0000-0000

930 0000-0000-0000-0000

940 0000-0000-0000-0000

950 0000-0000-0000-0000

960 0000-0000-0000-0000

970 0000-0000-0000-0000

980 0000-0000-0000-0000

990 0000-0000-0000-0000

1000 0000-0000-0000-0000

1010 0000-0000-0000-0000

1020 0000-0000-0000-0000

1030 0000-0000-0000-0000

1040 0000-0000-0000-0000

1050 0000-0000-0000-0000

1060 0000-0000-0000-0000

1070 0000-0000-0000-0000

1080 0000-0000-0000-0000

1090 0000-0000-0000-0000

1100 0000-0000-0000-0000

1110 0000-0000-0000-0000

1120 0000-0000-0000-0000

1130 0000-0000-0000-0000

1140 0000-0000-0000-0000

1150 0000-0000-0000-0000

1160 0000-0000-0000-0000

1170 0000-0000-0000-0000

1180 0000-0000-0000-0000

1190 0000-0000-0000-0000

1200 0000-0000-0000-0000

1210 0000-0000-0000-0000

1220 0000-0000-0000-0000

1230 0000-0000-0000-0000

1240 0000-0000-0000-0000

1250 0000-0000-0000-0000

1260 0000-0000-0000-0000

1270 0000-0000-0000-0000

1280 0000-0000-0000-0000

1290 0000-0000-0000-0000

1300 0000-0000-0000-0000

1310 0000-0000-0000-0000

1320 0000-0000-0000-0000

1330 0000-0000-0000-0000

1340 0000-0000-0000-0000

1350 0000-0000-0000-0000

1360 0000-0000-0000-0000

1370 0000-0000-0000-0000

1380 0000-0000-0000-0000

1390 0000-0000-0000-0000

1400 0000-0000-0000-0000

1410 0000-0000-0000-0000

1420 0000-0000-0000-0000

1430 0000-0000-0000-0000

1440 0000-0000-0000-0000

1450 0000-0000-0000-0000

1460 0000-0000-0000-0000

1470 0000-0000-0000-0000

1480 0000-0000-0000-0000

1490 0000-0000-0000-0000

1500 0000-0000-0000-0000

1510 0000-0000-0000-0000

1520 0000-0000-0000-0000

1530 0000-0000-0000-0000

1540 0000-0000-0000-0000

1550 0000-0000-0000-0000

1560 0000-0000-0000-0000

1570 0000-0000-0000-0000

1580 0000-0000-0000-0000

1590 0000-0000-0000-0000

1600 0000-0000-0000-0000

1610 0000-0000-0000-0000

1620 0000-0000-0000-0000

1630 0000-0000-0000-0000

1640 0000-0000-0000-0000

1650 0000-0000-0000-0000

1660 0000-0000-0000-0000

1670 0000-0000-0000-0000

1680 0000-0000-0000-0000

1690 0000-0000-0000-0000

1700 0000-0000-0000-0000

1710 0000-0000-0000-0000

1720 0000-0000-0000-0000

1730 0000-0000-0000-0000

1740 0000-0000-0000-0000

1750 0000-0000-0000-0000

1760 0000-0000-0000-0000

1770 0000-0000-0000-0000

1780 0000-0000-0000-0000

1790 0000-0000-0000-0000

1800 0000-0000-0000-0000

1810 0000-0000-0000-0000

1820 0000-0000-0000-0000

1830 0000-0000-0000-0000

1840 0000-0000-0000-0000

1850 0000-0000-0000-0000

1860 0000-0000-0000-0000

1870 0000-0000-0000-0000

1880 0000-0000-0000-0000

1890 0000-0000-0000-0000

1900 0000-0000-0000-0000

1910 0000-0000-0000-0000

</div





# Extra Graphics

He liked the software so much — he wrote his own  
Peter Whitaker on the Touchmaster Graphics Tablet

Having bought a TouchMaster Graphics Tablet I can say with full confidence that it is well worth the price of £52.95 (Dragon User February 1988). When I first bought the tablet I was quite impressed with the graphics available through the Multiscale program, but after a month while I left that it needed improving.

The program I have written is based around the Dragon 32 with disk drive to obtain a pixel resolution of 512 points by 384 which is better than the Apple IIcintosh of 512 by 320 pixels. The program can easily be submitted to work with cassette tape (loaded) or with disk, although the machine code routines will need to be altered to take account of the different graphics screen addresses. The program works by reading the Dragon 32 with the loss of the extra big graphics screen facility.

## The Graphics Tablet

The graphics tablet is connected to the Dragon via the cartridge port but is not packed into Dragon Board. There is no equivalent of the J012H command to read the position of a pen on the pad. Instead a small program is needed to read where the pen is, pressing the pad, and if it is where (Registers #1, PADD04).

Unfortunately, the pad does not use the same resolution as the Dragon's graphics screen (256x256) but has a resolution of 256x256. This means that figures are not square in shape. A circle drawn on the pad will look like a squashed egg on the screen unless the Y co-ordinates are suitably adjusted. The program we show here creates co-ordinates at X=P000Y#000F00 and Y=P000Y#000F00 and the rotated co-ordinates at X=P000Y#000F00 and Y=P000Y#000F00.

To input the program and read the pad and then set the equivalent point on the graphics screen to initiate the hand-drawing. However, by using the code #P002#A97973#07 the program will stop before setting the pen and the machine code routine can be used to read the position of the pen on the pad for use with other functions.

## The Main Program

Type in Listing #1 and run it. It will type "Type in the address number from 20000 to 20002#20010#1794" to C0A10#A0#0002#20010#1794. Type in Listing #2 the machine code loader CLEARS0#20000 and then PUL#0. Enter the start and end addresses of 20000# and 20115# and then enter the code for #D#C00# Type in each line of 16 digits, and then press enter. Then enter the last seven



at the end of the line. When you have typed in all the data save it to memory with C0A10#M#P0000#0#20001#20115#20201. Now do the same with the #D#C00# data using 20201 and 20300 as the start and end addresses. You can now remove the tape, CLOAD and RUN the program.

When RUN the program loads in the code and then displays the graphics screen whilst the various variables are initialised. When the program is ready the top left corner of the screen will be unprinted, and then printed (black is white and back again). This inverted mask of the screen retains the area of graphics memory currently being addressed by the pen.

Using Multiscale the program is controlled from the keyboard since the whole surface of the graphics tablet is used for drawing. Each time a key is pressed the current screen is loaded up to graphics page 0#0#0. This allows the inclusion of an OS routine called by pressing the #Q# which will delete everything entered since the last key press, and help to correct any mistakes. Pressing the #C# will save the current screen to memory so that it can be recalled #P# after several object-handling operations.

Press the pen on the pad, and any hand-drawn drawing will be displayed on the screen to the scale of the original monitor screen. To increase pencil drawing there are four different drawing sizes available, and these are called by pressing the number keys from #1# to #4#.

Draw on the pad to cover over the whole screen, #D# and draw on a quarter screen, #K# on a subplot, and #L# on a sub-sub plot. Each time the scale is changed, the program will scan and calculate the relevant area of the screen. Whilst the subplots #L# will allow drawing over the whole screen, the other scales require the drawings to be positioned over the appropriate area of the screen. This is done by pressing any of the four cursor keys #C# and #J#.

Choosing area #K# will draw the relevant area of the subplot to show where the drawing area is now positioned.

The program is user trapped to prevent the drawing area from running over the edges of the screen. To help position the pen in the right place when using the various drawing scales, the #G# key will place a line over the drawing area. This eight by eight grid will be placed to show the area covered by the whole pen, and will be displayed until another key is pressed.

There are several different brush types available as an alternative to the drawing pen mode selected by default. These buttons are called by the #B# key, and then give a choice of either line or beam. Circle radius and baseline offsets are selected, and then the program returns to the graphics screen. Freehand drawing will always be the selected brush type. To return to the main program press the #G# which will also return you to the pen drawing mode.

The next available option is the One gene GET and PUT command. This will get an area of screen memory into an array and then allow it to be copied to any other area of the screen. Press the #A# to call the GET routine. Two lines will be drawn from the pen position, one off to the right hand border and one to the bottom of the screen. This is to show the top and left hand edges of the area which will be got. When the pen has selected the correct point press Enter or type #A#.

Now as the pen is moved around the screen, the program will draw a box from the last point to the current point indicating the total area which is going to be copied to the array. This area must not exceed 10000 pixels (#1000#1000#100#100) or a fatal error tag for the array. When the pen is correctly positioned, press Enter again to copy the picture. If the area is too big for the array, it will read across, and the program will continue to wait for the second

present by the selected. The routine can be activated by pressing the **Alt** key.

Moving a picture into the array will not be reversed back to the screen by pressing either the **IP** or **IL** keys. The array will put the array base on the screen using an whatever background it contains using the **BS** key will place both the array and the background on the screen. Whatever key is used (the picture still has an array off whenever the pen is placed). Press **Enter** to select the desired position. Press **Q** to quit the routine. The array will keep the same picture it is so there is no need to re-GET it each time.

The next function, called by pressing the **down** key, prints an address any letters entered via the keyboard. When called, the system will first print a form space (**M**) which holds any letters (**A-Z**), and then it will print an angle bracket which is to close the letters, **CJ**, shown left or right (**[<]**). The program will then bring two underscores (**\_\_**) to mark the pair position from which the letters will be drawn. When the pair is in the correct position pair into type, and the program will close the letters off space. Press **Enter** to finish the test area. If you make a mistake in your typing, break the last routine, and then press the **Q** key to do this.

The last drawing routine provided is called by the **MM** key, and accesses the Oregon's **LIVE**, **box**, and **CIRCLE** commands. The program will ask for which of the three options you want...and then return to the graphics screen. Pressing the **PAUSE** key will first prompt you for either **center** or **angle**, and press **Enter**. When the **box** is plotted on the screen, the program will allow the user to move the box points. Press **Enter** to select any given edge, and the program will lock it in the display, and stay on another. In this way, for example, several concentric circles can easily be drawn. To quit the routine you need to press the **Q**.

All of the above functions are fully enabled on the Dragon 32 but the following function is not. When in 64KB mode the Dragon uses 80x24 or PBM+ shape but when it is in 32KB mode only half of these are used. (The other 32K is hidden under the ROM and cartridge memory.) To obtain the high resolution printer graphics memory I have to sacrifice 24K of that same memory for graphics. The 32KB non graphics screen acts as a window on the

greater use of graphics memory (1212-324). By pressing any of the Arrow keys with the Shift key, the window can be scrolled over the larger graphics display. Each time the window is scrolled, its contents are copied up to the Register, and the starting location for the new window is copied down. Pressing the left key will compress the Register down to fit the display screen so that all parts of the total picture can be passed. The program then waits for a response before returning to the main menu.

The extra memory for the Expressen is accomplished by a short machine code routine, `BLA$PC$PUSH` (Assembly #2), that POKES `$D800`, `PEEK ($D800)` and `POKE` to stop the interrupts. Then it poking to `BLA$PC$PULL` to patch the computer to use RAM mode. In my model the `BLA$PC$PUSH` routine hangs and no longer exists in the RAM (you can't see it concerned). However, the extra memory can be used and we can supply to and from the display screen. When we do this, though, the program moves to `BLA$PC$PULL`. It's better to

The program includes a download routine for both the display screen and the Zilog 80 or 68000 and provides the display screen with 64 or 128 dot sizes based on the monitor. The display screen has a routine for a screen title and has four subroutines for a file, but only uses the first seven bytes. The save routine will copy down the display to the display shown in four quarters, saving each one separately and numbering them from 1 to 4. The load routine will load each screen back to the display and then copy it up to high memory, if using cassette tape remember to delete the ROM from the load address. Lines 300-304 and 650-654. The last try to remember is the file which sets the matrix display, it turned out of which any does what. The only routines not mentioned are the `GO` to display the compressed screen and the `GOCLEAR` to PDC & the display screen.

located in 24, and there is space enough for a few extra systems such as a 16-mm camera.

If using clear-on-the-64, there is little use for the backup screen (A0-A1-B0) so this routine could be altered including the array A0. This would clear enough memory for our purposes.

If using a Dragon 32, then it is advisable to define the `bigmem` routine and gain extra memory that may be free (0-3112). This can be done as follows:

If you do not yet have a Tocuhless-  
Gripless Taster but do have a Dragon II,  
it is possible to convert the program to  
joystick control instead of the pad. Instead  
of using the PADD000E resource code  
routine (CODE00000000), one can read  
joysticks and instead check for a key  
pressing on the pad using checkkey()  
function. The program should also be  
able to make use of the four different drawing  
resources, and switch them when  
the joystick is moved.

#### **Printing the Bitstream**

Because the BeepScreen is hidden under the Basic ROM, it can not be accessed by a Basic program alone. The BeepScreen machine code routine is required again to copy data to the memory pointer for printing the player names (L187000) or to set up the graphics (L187100). Lines 10-13 do the same thing as L187000 except for the machine code which loads the BeepScreen picture into high memory. Lines 10-13 end prints and sets the active.

The program works by copying the uppercase version of the display character it has seen and then copying these to the parallel memory at **SCREMLIST** as memory **100** to **110**. And you will be able to switch the process. By varying the amount of data copied down (**Q** is less **Q1**) and the printout format, the program can easily be modified to work with any other printer.

If you don't want to type in the whole program, take happy snaps on cassette tape for ID. Send a cheque or postal order to Peter Brattin, T3 Services, 2000 E. 10th Street, Indianapolis, IN 46226.

## Modifying the Program

With disk drives attached, the program only requires about 500 bytes of memory so there is little reason for exposing the program to varying pressures. The data memory will be

02241	- 00FFB0384FEB7FF00-	1267	02263	04F6700C09E77000-	1314
02242	- 077FD70000000000-	1471	02277	- 00FFB0384FEB7FF00-	1267
02257	- 00270C30000404020-	606	02285	- 077FD70000000000-	1371
02265	- F999700C09E63000-	1259	02293	- 06687F70E6687F70-	1198
02273	- 710E110000000000-	762	02461	- 00FFB0384FEB7FF00-	1223
02281	- 0000000000000000-	1108	02489	- 00FFB0384FEB7FF00-	1184
02287	- 0000100002400000-	630	02417	- 0000000000000000-	1147
02297	- 000FF0500FF000000-	1259	02425	- 700F7F70E6687F70-	1228
02305	- 007F003000000000-	1067	02433	- 007E500007E50000-	1123
02313	- 0000000000000000-	969	02441	- 0000701300000000-	1049
02321	- 0000000000000000-	753	02449	- 0000000000000000-	1026
02329	- 0024000000000000-	1111	02457	- 007E500007E50000-	1411
02337	- 000FF030000000000-	1029	02465	- 007E500007E50000-	940
02345	- 0007400000000000-	661	02473	- 0000240000000000-	098
02353	- 0000000000000000-	662	02481	- 0000FF0000000000-	1239
			02489	- 0000000000000000-	311

Appendix 1 - Packets

02241	- 00FFB0384FEB7FF00-	1267	02263	04F6700C09E77000-	1314
02242	- 077FD70000000000-	1471	02277	- 00FFB0384FEB7FF00-	1267
02257	- 00270C30000404020-	606	02285	- 077FD70000000000-	1371
02265	- F999700C09E63000-	1259	02293	- 06687F70E6687F70-	1198
02273	- 710E110000000000-	762	02461	- 00FFB0384FEB7FF00-	1223
02281	- 0000000000000000-	1108	02489	- 00FFB0384FEB7FF00-	1184
02287	- 0000100002400000-	630	02417	- 0000000000000000-	1147
02297	- 000FF0500FF000000-	1259	02425	- 700F7F70E6687F70-	1228
02305	- 007F003000000000-	1067	02433	- 007E500007E50000-	1123
02313	- 0000000000000000-	969	02441	- 0000701300000000-	1049
02321	- 0000000000000000-	753	02449	- 0000000000000000-	1026
02329	- 0024000000000000-	1111	02457	- 007E500007E50000-	1411
02337	- 000FF030000000000-	1029	02465	- 007E500007E50000-	940
02345	- 0007400000000000-	661	02473	- 0000240000000000-	098
02353	- 0000000000000000-	662	02481	- 0000FF0000000000-	1239
			02489	- 0000000000000000-	311

Appendix 2 - Headers

02241	- 00FFB0384FEB7FF00-	1267	02263	04F6700C09E77000-	1314
02242	- 077FD70000000000-	1471	02277	- 00FFB0384FEB7FF00-	1267
02257	- 00270C30000404020-	606	02285	- 077FD70000000000-	1371
02265	- F999700C09E63000-	1259	02293	- 06687F70E6687F70-	1198
02273	- 710E110000000000-	762	02461	- 00FFB0384FEB7FF00-	1223
02281	- 0000000000000000-	1108	02489	- 00FFB0384FEB7FF00-	1184
02287	- 0000100002400000-	630	02417	- 0000000000000000-	1147
02297	- 000FF0500FF000000-	1259	02425	- 700F7F70E6687F70-	1228
02305	- 007F003000000000-	1067	02433	- 007E500007E50000-	1123
02313	- 0000000000000000-	969	02441	- 0000701300000000-	1049
02321	- 0000000000000000-	753	02449	- 0000000000000000-	1026
02329	- 0024000000000000-	1111	02457	- 007E500007E50000-	1411
02337	- 000FF030000000000-	1029	02465	- 007E500007E50000-	940
02345	- 0007400000000000-	661	02473	- 0000240000000000-	098
02353	- 0000000000000000-	662	02481	- 0000FF0000000000-	1239
			02489	- 0000000000000000-	311

11



#### REFERENCES AND NOTES

#### Lesson 2: Representing Data

# Expert's Arcade Arena

GOOD: Don't we all you good people and welcome to the third column! Yes, finally this is a part of history. There have been so many letters that my entire house is packed with them. My postman has a hernia. My lover has left because she can't get me the backroom boy letters. On a scale of 100 to small like people say and not be mysterious never mind.

But loyal to us as I am, I have read every one of them and tested some of the poles and tried out the traps and basically worked my tools off so that you the loving scoring readership have this column here for you.

SO TO BUSINESS first of all game news. Some of you may be asking that I didn't mention a game earlier to Asia-Asia. Well, we will soon have a choice between that and a version of it's sequel by Microsoft. Having seen both I can already say that the Microsoft one is closer to the original than the Baby one is more of an adventure. In certain objects are needed to pass certain levels and I don't understand one above the other no doubt the sequels will do that too but I can say that I have no preference between them at this moment from the limited time I've played them.

Moving rapidly to your letter here first along thank you for all the just the Wily mag. I have decided that I had the issue published was the best of them as it contained a lot of relevant information in a clear hole as well as a section drug.

Thank you to G. A. Smith et al. Mrs. D. P. Gardner, Mark Bowen, Brian Long, and Michael Elsner for their traps and also to anyone else who has sent one which I may have not received by copy deadline.

Now there is some specific points. Mark Bowen of Kent writes with the following:

**Plays Wario** — Load up the game type POKI 9459. It contains it is the number of levels in the type EXDD.

Mark says he has still got no further than level 6 and that we have not received it. Well, Mr. Elsner, I know Bowen if you take a look through your back issues to the issue dated October 1983 you will find John Somers' review which for those of you that I shall re-print (in general non-

commercial) here:

"Up next for the most original game of the month has to go to *Wario Wasteland* from Programmers Guild. In this excellent game you and up to five other players control game figures wearing a judo suit. The ground consists (surprisingly) of sandpaper and you must try to pass him down speed him up, or move him up in the air. The two button controls a sliding switch which he performs

To gain a white belt the landscape is littered with boulders that can jump over, but a higher score is achieved by knocking them to dust. If he survives with a female mind he'll beat for higher grade belts progressing him with time to jump over logs to boulders and even underground! Eventually (so they tell me!) your master becomes a black belt. For me this was a highly entertain-ing game using a novel idea, smooth graphics and good sound. I hope future programs from Programmers Guild will be as good.

I believe Computerware are now the sole supplier of *Wario Wasteland* but I'm sure that you will receive it in due course. Personality, the game is fun at the start although my friends all lost it rather quickly! I have rugged the *Dragon Master* game into giving it a relevance to expand this paper. My rating's stand at the end of this month's column.

Mars goes on thus:

Do you know if Design Concepts are planning any new games? — No, I don't, but I'll look out for you. — Is anyone any good at *Dark Star*? — Yes, I am — and it's hard? — I suppose I'm just brilliant.

I am about to type you platted this article down. It is always claimed that your imagination must create better games and various applications but I have seen several twice as many advertisements for games than serious applications as why not have a *Mean Machine*? The point I am making is that your column should cover two or three pages.

I agree with others that it is nice to know how you feel about a title. To the usual address clearly marking your letters "The Expert".

Mars concluded by saying

wrote to "The Expert" of Dragon User

10-12 West Street, London WC2H 7RF,  
with as poor words, not bad ones.

I think to boot. Well, I'm quite pleased to release for the lot being reasons.

(I) have no way to verify the sources or prove that they were not obtained on received versions of games.

(2) I don't really believe that people are interested in reading other people's in access, publishing them just serves to message some probably already existing legal.

(3) There is an interest in such things as healthy competition. The idea of the column is not to find superstars but to co-operate with each other to create a healthy environment in which we all share. My function as one of a co-ordinator, albeit a highly unskilled one! Think of this as a computer column!

The column continues month Please keep writing, I have bought myself a warehouse to store your letters in so I'll be set now! See you next month with lots of games and some interesting pieces on the hobbying you might like to read over and I promise we'll be back to the stupid humour again as well. I don't know how you can wait!

	S	P	A	V
<i>Heavy Metal</i> (Programmers Guild)	8	8	10	8
<i>Ruby Robbie</i> (Baby)	7	8	8	8
<i>Paul's Castle</i> (B & F)	8	7	8	8
<i>Gratobal</i> (Microcell)	8	8	7	8
<i>Supersector</i> (Daten)	4	4	8	8

## The Mansion of Jet Set Wily

1. THE BATHROOM
2. THE DRESSING-ROOM
3. HOME LUNI
4. UPON THE ROOF
5. UPON THE BATTLEMENTS
6. THE WATCH TOWER
7. LET US PERFORM A QUIROFLETS
8. I'M SURE I'VE SEEN THIS BEFORE
9. RESCUE ESTERELOR
10. TOP OF THE HOUSE
11. CONSERVATORY ROOF
12. UNDER THE ROOF
13. THE ATTIC
14. DR. JONES WILL NEVER BELIEVE THIS
15. THE GAMES ROOM
16. EMERGENCY GENERATOR
17. PRIEST'S HOLE
18. ABOVE WEST SCORCHOR
19. ABOVE WEST MIND

The MANSION

卷之三

- 5 - **Software**  
- **Windows**  
- **Mac OS X**  
- **Linux**  
- **Android**  
- **iOS**

THE JOURNAL

THE LAST READING  
BY MARY WILSON  
IN THE READING ROOM,  
THE LIBRARY BUILDING,  
25 SEPTEMBER 1903.

卷之三

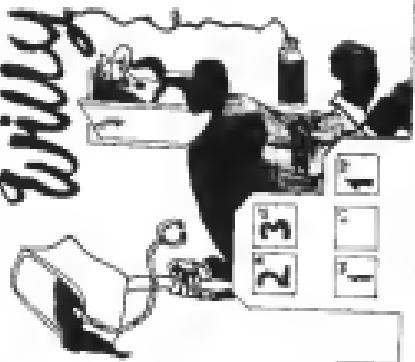
1

卷二

BRITISH JOURNAL  
OF FOREST  
AND  
FORESTRY

THEORY AND PRACTICE

--- set set



40	On the question of the right to self-determination	40	On the question of the right to self-determination
41	On the right to self-determination of the peoples of the former Soviet Union	41	On the right to self-determination of the peoples of the former Soviet Union
42	On the right to self-determination of the peoples of the former Soviet Union	42	On the right to self-determination of the peoples of the former Soviet Union
43	On the right to self-determination of the peoples of the former Soviet Union	43	On the right to self-determination of the peoples of the former Soviet Union
44	On the right to self-determination of the peoples of the former Soviet Union	44	On the right to self-determination of the peoples of the former Soviet Union

MILLS, BROWN

ESTATE PLANNING

第 10 章 常用函数与命令

# MIKE GERRARD'S ADVENTURE TRAIL

LETS GOON with details of another trailer — there that should get everyone's attention. With the help of a solution from Simon Higginbotham (Grenway Software) Mike Garry (Eds. GURPS 2E) has prepared a hexcoubic Trilogon (if you want a copy of that send in the usual s.a.e. and your needs will be my command).

One reader wrote in asking what were the various publications available so he could get an update on these adventures. Firstly I've got a copy sheet for *Wasteland* and the *Adventures* (as originally supplied by Dragon Data to anyone who writes in with queries on that game). I have also got a copy of the review that was in the *gamer's digest* card for *CD* (which is copies of the adventures now hard to be sold without the tray and the solution is really to help you get started on what is a difficult game). Finally I've got solutions to *The Chilledwood Incident*, *Adventures*, *Andy's Disappearing Adventures* and *Adventure's Tales*. If you want copies of all those then you only need send the authors a n — — — and a self-addressed envelope (you could M an elephant in your post office). I have the transcripts on 8" x 12" disc and simply print out on A4 paper whenever I get a request for one.

A reader from Gloucester whose name I won't give in case the gas instigated with similar requests, decided to provide his own trailers. This reader used to be a tester for *Grenway* and had spare copies of *White Castle of Dover* and *Adventure's Incarnations* which he sent to St. Andrews and I must say thanks about the games in an earlier column. Thanks you for that and for the information that before buying either game you must POCB 25-6. Now update the sales memory both programs require. (And thanks to Mrs. Profferty of Abingdon who shared the office with the same information.)

## Madness

S. J. Edwards from St. Albans, New Market, Surrey KT3 9RH says: "Gaming players in producing the best adventure column in my magazine" Well, shucks, one does seem a fool and I like to take this opportunity to thank my editor (whichever it is) my co-authors (my producer my just of speech dataset) (anyway) what S. J. Edwards says is that he is having difficulty tracking down copies of the *Adventures* and would be interested to hear from anyone keen to sell or swap *Madness* and the

Minotaur Dragon Mountain. Details needed Stock Structure, Adventure Traiger, Viking Monsters and Magic and several more than *Trilogon* are now apparently sold out. Final Countdown, Minotaur of Doom, Shaggydog, Madman, Adventure and *Conan* (not *Mad Max*) are available though they're not adventures. Dragon Power, Diger and Dragon 2000.

Help me a few lines is off-the-shelf Douglas Frost 14:1 Laserworld Manual (I Number 002) HUTCH 002? It's interesting. Kind of the *Wheel*? Plan House and Prince Adventures in return for which if anyone knows where to can buy some cut-price adventures for his BBC Tandy Discs. Any offers?

## Help

Peter Williamson at 27 Glazeburn Road Worcester WR8 2BD was trying to persuade out of a job and offering help to anyone stuck on disappearance while Mark Gandy has completed *Space Structure* (Cloudy Island), *One Death Above* (of Ghouls and Shanghaingers) and others have on any of these. Don't forget there's a when writing to my reader for help of course. Mark wants to know if anyone has come across any very mysterious French or German so he can combine his resources hardly with his CD resources. A nice trick Mark and if anyone can help put get in touch with him to Mark Gandy, 104 Penrose Park, Coombe, Farnborough, Hants GU14 9UE.

If you were studying *Lilith* Mark, you could have had containing Mario Perdita of Valiant Press's 8 copy series *Verginia Italy*. Marco writes to say that after three months of effort he is finally finished the last book of *St. Dubious*. I think the post-factum difficulties now are Marco's trouble in printing and the other delayed in April. Still he offers help to anyone stuck in the adventure or if you just fancy contacting no-nonsense Dragon owner why not write?

Christopher Dayne from St. Albans wrote about various things including the suggestion to make more space for the review column so I should suggest that large heading and the notes written from printing committee covers and other illustrations on the page. Personally I think a small page of text would look greatly better but the dragonists are very strong-were on that! Christopher also suggests that a few notes for beginners should be made available so leaving even more room in the column for printed

reviews and clues. If there's sufficient demand from long-termers for that, then I'll try to do something about it.

To keep Christopher happy then I'd better get on with some places like those from Stuart Smith of Birmingham in *Age Engages* or Ed Hartman *TRICORINA MCDFP DULHOLAND CHOCOBIS DSU*. To escape the dragon, *NAMWORMS PAEN EGT MCDFP MCDF DSU* in *Towers of Death* or tell Medieval *SCORPIAN TRICP*. The order in which to move the cursor: *EARTH DAT CWT ENO*.

A few clues on *Trilogon* from Matthew Morris of Compton: To close the force field *HATONCHI MCDF TLUMA TRAC*. To remove gate *TI RENDR SOCA PLUOP*. More help from a reader in Derbyshire who doesn't say he's hermaphrodite: On Phoenix's Death to stop the water in the aqueduct *ELUCH BULUP CPYTF DNA DFLP CRP*. To find the key *HISMRUD YALUSDNA HISSMURUD EUTADOT DS*. To open stopwatch *BRALDC EHT MCDF CAGULLA RQ HTUOM STT OTHRE RISTAM TRCP*.

Can anyone tell Pat Perry where to clip the hag in *El Gauntlet*? Come to that, can anyone tell me?? Please write to St. Albans Head Massfield Woodhouse, Herts, and I'll be an old innocent in the corner of the Dragon User office.

## Code

Andrew Hill has got a code, not as the book but in *Operation Geha*, and he's willing to pass the information on to others, particularly Justin Field who was writing about it in the April issue. The code for part 1 is 13 (HNTSR) and for part 2 is TAVASD. There isn't even much point in printing these (but I strongly believe so) I hope nobody reads Andrew's code for a good adventure for a beginner, probably with graphics — the adventure that is not the player. I'd have thought something like *Stargate* or *Sea Quest* would fit the bill both with graphics. Both intriguing not too difficult for the inexperienced player but good for the long-term as that all the problems are very logically solved and the action of the game isn't so big that you get lost wandering down endless cyclical and through mazes.

Steve Miller has already had a review in the column but someone has addressed him but wrongly to 111 in April 90. Oh!

# **PEAKSOFT DRAGON SUPPLY CENTRE**

4.4.4. **Filter** & **sort**: Single-edited absolute density (B60) (DRAFT).  
LENTS are presented by Dragon Data as float values in column  
order, just concatenated or stored by the B60 pipeline (reduced to  
1000 rows in special order from classified — please send self-  
documented comments).

第10章

**Competitors in pre-bridge could prove difficult for the Radio Designers**  
because they can add 1000-odd wireless stations.

There are now **FOUR HUNDRED THOUSAND** pages to explore on Internet and Parallel sites, many of which give reasonably clear ideas while on complex problems we encourage students to follow links according to their free choice. We did not expect so much use.

The Penn Ringers give you phone time to tell your Design 334-8111 to make your reservation throughout the country ... the special dates will come in and they are here.

**OUR BIMINI TENT KIT PRICE IS JUST \$149.95** complete with all hardware, easy-to-set-up, cartridge windows, and including a **Holiday 2-month warranty** to fit most and a **PDF** copy of the **Customer's Manual**.

**ONE DAY YOUR HOME WILL HAVE ONE  
—THE OFFICIALS YOU THINK IT'S GOT.**

卷之三

**PIANOFT BOARD NOW HEAVY DUTY POWER SUPPLIES**  
THE company offers a wide range of second hand

**DRAGON DATA DRIVe COPPER BOARD TRANSPORT**  
MURS 614 10' TWO-BOARD CHANNEL LINE IN THE APPROPRIATE LENGTH  
FOR 10' LENGTHS OR IN LENGTHS OF 10' EACH, THREE EIGHT-FOOT

100% MEDIUM DRAGON BREATH SHIRTS. Price \$12.95. Our  
price \$11.95 + SHIRT price \$1.00. Our price is \$10.95 + Please  
note it is M, L or XL size. HALF PRICE SPECIALS, OFFERS — For  
EACH \$10.00 donation above you will receive \$10.00 discount for \$12.95  
or \$14.95 T-shirt or \$11 just above \$10.00 will do it!!

UNADA: numero 00-00, serial 00-00, primer 00-00  
ultimo 00-00

Downloaded from https://academic.oup.com/imrn/article/2020/11/3633/3290333 by guest on 11 August 2020

These new developments are likely to have significant implications for the future of the industry.

**CHEATAN 100-AUTOFIRE, AUTOTRACK, AND DRAGONBALLZ**  
1.1.05 PC/Mac (V) See bottom page section (below) for  
download links. DRAGONBALLZ only (except you can  
get it 1.1.05). Under many conditions, our unique President  
Dragonball Z NOT available the patch manufacturers  
guarantee.

**PROBLEMS** (1996 year 1996 each division has students from housing positions. Suitable for ALL Categories. (The type is identical for The Senior Cricket and League of Flags).

Please [Oregon Voter Registration number] as I am now registered in the state Oregon. Please fill out the following form to update my voter registration information.

To enter: Just type your name, address, computer and goods required after the URL of your choice to postmaster@AOL.com. AOL card holders may phone their order to 1-800-273-2222 at any time day or night. All orders are \$25.00 U.S. Postage by return mail, post, subject to postage. Personal checks welcome - please phone first so that we don't have to pay extra funds. CASH OR C.O.D. NOT ACCEPTED. All orders over \$15.00 - please add \$2.00 to each item shipped and pay the balance to the AOL card. AOL card will be mailed to you within 10 days.

[View this month's articles & news stories](#)

# **DRAGON USERS IN THE SOUTH**

We've organized another great Dragon Computer Show at which you can pick up some amazing bargains from the major dealers of software, hardware and peripherals and see what's new for the Dragon.

## Compliance

**The Annexe  
Coopers Hill Centre  
Bagshot Road (A322)  
Bracknell, Berks**

Saturday, 28 June, 1986

**Adults £1.00 Children and OAPs 50p**  
**Free parking Refreshments**

Coopers Hill Centre is very close to Bracknell town centre, next to Bracknell railway station, and approximately five minutes from Junction 10 of the M4 and ten minutes from Junction 3 of the M3.

Software for the C16, Plus 4 and Vic 20 computers will also be available.

#### Answers to the test

**JOHN PENN**  
**DISCOUNT SOFTWARE**  
Dean Farm Cottage  
Kingsley, Bordon, Hants GU33 8NG

**Seen Park Tollgate Co. Bubble Island** That's what it looks like anyway, but in Glaven it's something of a mixed bag and doesn't look like anything. I'm sure, and the reason for writing is that Glaven does like hearing from other readers and can talk with them (surprisingly). Just a quickie. **Colossal Island**, Black Sanctum, Abyss of the Wimpy Marshes and the Mireous and most of Treacherous Gnarly tend to be a mix of the kinds of Justification effects he asked us to print but the quality of the photocopy isn't good enough to reproduce. I'll add: Gnarly says we should have a few more written in the Magazine — and if enough readers want it then we'll consider it. (Just as I'm always printing readers' judgments anyway.) I hope you always feel free to write to each other without keeping a formal introduction (so if you want an intro just put the address in, say, the top page and whatever else there doesn't concern your man).

**Stephen Hostler** (1) Head of 4-Dimensional Fantasy Preston Lancs PR4 6AL also sent in a Justification map which set me about hypothesizing that all seven residents have moved about one. Stephen's notes in the Adventures section should be a lot longer — by at least five pages! Sorry on Stephen. Too much late-night adventuring has spoiled your letter I think. What Stephen needs is to print *Maze of Choice and Adventure Adventures*. In the former how to get across the land to reach the coffin and in the latter how to get across the

coffin level three. He also took a guess he has hints sheets and maps of these tiles. Not me, so sorry to you.

**Mac Hodge** has completed Justopedia book which for him every dragon owner should buy. If you know and get stuck on to Mac at Caliente Hammock Shagwampus Avenue 11A7 DJ4 Rick send the no less than 20 days for the game — maybe I do need an extra five pages after all.

Some people have been having co-ordinaten trouble in Sympy so James Bedford of 7 When End Whistlingworth Bentley Beds SG19 9PA to the rescue. "To enter the co-ordinates you must have the row you want and then press the numbers and pull the lever. For example, if you

wanted to go to the planet you must type PR1000 21401 PREFER FOUR PRESS ONE PRESS FIVE, FULL LEVER." The first planet goes to the planet! James also gives the other co-ordinates you need which are 2-7-8 to the general and 1-6-4-3 to Dandy Veden James is having trouble with Rows of the Mixed and adventure, not many have managed to solve and understand how to open the sealed chest in the hidden temple. How to open the secret box in the hidden temple and how to defeat the jester. If anyone has managed to put together a solution can you tell the Whole documentation team I can grant another column by saying, Let's begin with details of another treatise.

## Adventure Contact

To hypothesize adventures further we are inviting an Adventure Hypothesis — simply off in the corner below stating the name of the adventure, your problem and your name and address and send it to Dragon User Adventure Help.

### Adventurer

Problems

Comments

Answers

Address

Box 12103 Little Moregate, Stevenage, Herts SG1 2EP. As soon as enough entries have arrived we will start putting them in the magazine.

Don't worry — you still have Adventure Time to write to us until

## Adventure Contact

**Adventure Castle Adventures** Problem Is it possible to break glass in north east of an iron? How do I unchain the windows? Name Andrew Reid Address 88 Wardswayth Ave, Copley Edge, Sheffield S17 1RE

**Adventure Castle Problems** What do you do with the ironwork? Where do you fit the balcony? What uses is the metal detector? Where is the key? Name Roger Gosling Address 52 Tolerton Drive, Ayton, Knaresborough HG5 8SD

**Adventure Aquarius** 471 Problem I can't seem to do anything — just going about the housework because I find anything or go anywhere difficult. Name Robert Gosling Address 52 Tolerton Drive, Ayton, Knaresborough HG5 8SD

**Adventure** Justification Problem I got over the first balcony? Is there a tiny sheet? Name Andrea McDonald Address 23 Top Cott Court, Money Hill, Leek, ST12 8UD

**Adventure** Justification Problem How do I get past the semi-dark? Name Nick Davies

Address 18 Pease Close, Colchester, Essex CO5 8LP

**Adventurer** Justification Problem How do you get the amulet? Where are the Demos of Brown? Name Rayland Mitchell Address 84 Highgate Farm, Gayton in Marsh, Nr Abergavenny, Monmouthshire

**Adventure Demons** Problem I have found dead long long though rope and burning torch and hot soup. (That's after it says.) Name Ceri Evans Address 10 Manors, Cwmgwrach, Dyfed, Wales SA40 9EG

**Adventure** Treacherous Problem Can't get past the tortoise shell or get to the Glass Room. Name Seth Robinson Address 8 Brookhouse Close, Denton, Greater Manchester

**Adventure** Black Sanctum Problem Handycraftsman out of the forest? And everything at the top? Name Mel Mydd Address 21 Mertonshill Close, Grange Estate, RM16 4NU

**Adventurer** Justification Problem Where's the red one? Name Kim Hayes

Please help. Name Simon Morris Address 37 Collins Crescent, Herne Bay, Kent CT9 3BN

**Adventure** 11-Operation Barnes 21-Adventure Book Problem 1) Can't get past the first chapter. I can answer the questions but not get the code. 2) Completely stuck. Name Adrienne Marroff Address 17 (Delayed Please) Titchfield, Stow-on-the-Wold GL7 3BD

**Adventure** Wings of War Problem How do you get past guard with Luger in chest? Name Mark Lane Address 11 Hampton Close, Buntingford, Beds MK6 8UG

**Adventurer** Justification Problem I can't get out of the sword tower with the Indian Emerald. Name Simon Rose Address 4 Alder Close, Beaconsfield, Bucks HP9 1LH

**Adventure** Operation Sales Problem Can only see agents human ones need help to find the others. Name Margaret Wartwistle Address 24 Alice Street, Chelmsford, Essex CM1 3PD

**Adventure** Barnes of Dan V's Justification Problem Who's sent me down the river? Name Steven Langdon Address 40 Thornton Road, Hemlington, North Newcastle NE2 1EW

**Adventure** Justification Problem I am an animal lover but I can't find the right one. Name S. Mangan Address 41 St. Margarets, Cheltenham, Gloucestershire GL5 1JZ

**Adventure** Justification Problem I can't get past the JKL Guard. How do you get on to the plane part? Is there a hot air? Name Howard Johnson Address 10 Grosvenor Avenue, Bisley, Gloucestershire GL12 9DT

**Adventure** Total Eclipse Problem How should do you need to go to a higher level? Name D. Club Address 254 Buxton Lane, Cheshire, Cheshire, WA14 2SL

**Adventure** Return of the King Problem What do you do on the full moon? Name Tammy Louise Address 10 Barnes Close, Cheadle, South Manchester, M20



# Mind The Cracks

Gordon Lee hope from slab to slab in pursuit of this month's prizes — some great incentives

LAST MONTH we took a cursory look at random numbers, including reference to the Dragon's random number generating function. This, as in the case with the same expression on other microcomputers, has the disadvantage of producing the same sequence of numbers when starting from zero. Clearly if we are using this command in a program that problem needs to be overcome. An adventure-type game would be idealised here, for example objects were always set at the same location and the responses to specific commands were always the same. Naturally with random games, having objects that are too predictable would not provide much of a challenge!

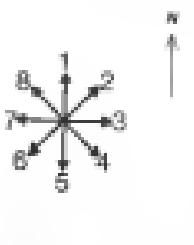
One way of overcoming this problem is to include the following lines in your program:

```
100 PRINT "PRESS A KEY TO  
CONTINUE"  
110 AD=INT(RND(X)=RND(1)) IF  
AD=1 THEN 110
```

The lines are numbered here 100 and 110 but they can be at almost any position in your program, possibly earlier beginning by following the title or instruction page. Using this coding, the computer will skip through its sequence of random numbers for an unpredictable period of time (until a key is pressed) and will so ensure that subsequent use of the random command will produce a truly unpredictable number.

Last month I gave a listing for a program which used the Heath keyboard to play a solitaire game on the Dragon's 32 by 16 line resolution text screen. This subject of solitaire solving has received a certain amount of attention in the mathematics press. At its simplest such a task can be one-dimensional, imagine that you are standing on a straight line, stretching in both directions infinitely. You toss a coin. If it falls heads you move one step to the left, if tails you move one step to the right. By continuing this process to two dimensions we arrive at something like a plane surface, see the one illustrated in last month's program. The experience this month involves taking a path with one much larger plane surface. Imagine a square quadrant paved with a regular arrangement of square paving slabs, 101 slabs along each edge. The pavements consists of a central area of 99 by 99 white slabs and around this is a single row of grey slabs.

Starting off the very centre squares are going to take a random walk, using a pseudo-random sequence of digits to decide on the direction of travel. The path is determined by taking successive digits in the decimal part of the expression 1/17369, which begins 0.0000004876719...



Each digit determines the direction in which we move, as shown in the diagram: for a '1' move one square north; for 2 move one square diagonally northeast; and so on. The digits zero and nine are ignored whenever they occur. Steps would start out pointing by moving south and south west etc. The question is, at which point would we be forced to turn step onto one of the grey border slabs? Please give

#### Puzzles

This month we're back in lapland country, with 30 copies of last month's dragon review's snowy sportswear game Moon Crest, courtesy of Interactive Software, as prizes. Be sure to enter the competition and win some well-earned frosty cash!

#### Puzzles

To win a prize game, you must send us the answer to the problem in the form of the address of the slab in question, and a cassette, for repeat of the program you used to solve it. No cassettes please — they won't fit in the competition box.

Make sure your name and address are printed clearly on your entry, and write the address of your envelope. Only Competition Headquarters which your entry will not be read in the competition box.

As a bonus, complete the following phrase. The Dragon likes a good idea.

Enter must reach us by the end of August, and winners will be announced in the September edition. The breakaway will be judged on their imagination and the editor's decision is as usual final.

#### April Winners

The 10 lucky winners will be receiving copies of *Breakaway* from Moon Crest. They are: G. J. Newson of Aldershot, M. J. Stora and K. Knightwell of Loughborough, J. S. Lewis (with short names), J. C. Ogle of Chelmsford, M. Stone of Jesmond, Mark House of Wetherby, Paul Stoen of Walton, Liverpool, Oliver Parsons of Redditch, Worcestershire, C. Joly of Coombe Park, London, D. Dickenson of Croydon, and P. J. Taylor of Aldershot.

your answer in the form: North edge, 1234567890 North-West corner — or whatever.

For collectors of mathematical curiosities, the decimal value of 1/17369 repeats in cycles of 17368 digits. Its first value was first calculated by the 16th century mathematician William Oughtred, who also computed the value of pi to 707 decimal places. When this value of pi was determined it was found that the digit '7' occurred much less frequently than did the other digits. Scholars of the time put forward all sorts of theories as to why this should be. In fact, however, had Oughtred stuck to his original calculation and enlarged after the 500th decimal required, Oughtred had been surprised to find that the frequency with which the first digit occurred balanced out, as indeed they do for even longer sequences of the value of pi. In this regard, please note the remarkable generation of randomness required.

We began last month by linking print and random numbers, so it perhaps appropriate that we should now conclude in this part



Rowley Park, Stafford, F. J. Taylor of Aldershot, Mosteiro, Justin Hayes of Histon, Barrie, Lorrel Davies of Amherst, Francis A. A. Sesuma of Chiswick, and Rachel Edwards of Sedgfield, Co Durham.

All agreed that the number of volunteers in the room just did not count me the Competition Master, who could make a total — but we don't need to know that! The volunteers were history on the books but our because record. I expect by next Christmas because I think I left my ball bags there.

# MAKE YOUR DRAGON USEFUL!

With our great value hardware and software deals!

SUPER DEAL 1: Single Drive System	RRP
CUMANA Single 40 Track Drive 360K	£225.45
SHARESDISK (or similar)	£ 16.99
	TOTAL PRICE £240.44
SAVE £30	OUR PRICE £209.99

SUPER DEAL 2: Dual Drive System	RRP
CUMANA Dual 40 Track Drive 360K	£345.40
+ CASHBOX (or other Shareware (Prog. etc))	£ 16.99
	TOTAL VALUE £362.44
SAVE £45	OUR PRICE £316.99

All Prices include VAT and delivery.

## SOFTWARE FOR DRAGON 32/E4/E28 AND DRAGONBASIC/CUMANA DOS 3.0

Professionally written programs for home, office, and small business with random access dos filing and our 42 x 24 screen with true lowercase

MONKEYDUE Personal accounts	£14.99
Complete income and expenses for bank account credit card etc. Forecasting, budgeting, Optional VAT analysis for use as small business notebook	
MAILBOX Mailing List	£16.99
Stores names, addresses and up to 10 user-defined fields. Select records by multiple tests. Prints letters, lists, reports or display reports	
SHAREDBOX Stocks and shares	£16.99
Prints or displays share valuations, capital gains, dividends and tax credits, income forecasts, price changes, drawn graphs of price trends	

SALESBOX Sales Ledger	£16.99
Balance brought forward with 4 debit periods. Can print statements, aged debt, analysis, daybooks, totals, nominal code report. Can link to CASHBOX	
BILLSBX Purchase Ledger	£16.99
Balance brought forward with 4 debit periods. Can print statements, totals, aged credit, list, totals, daybooks, nominal code report. Can link to CASHBOX	

CASHBOX Nominal Ledger	£16.99
Double entry system posting debits/credits in up to 800 accounts. Prints trial balance, balance sheet, profit and loss, budgets, forecasts, audit trial. Can read SALESBOX/BILLSBX files	
STOCKBOX Stock control	£16.99
Records sales, orders, delivered. Prints low stock list, orders due, valuation, turnover, price list, stock movements. Can bulk change prices	

ORDEREDBX Invoicing	£16.99
Print invoices, etc. on plain or pre-genned paper. Can link to SALESBOX or STOCKBOX.	

Checklist PO's/Further details/Direct response to:

## HARRIS MICRO SOFTWARE

49 Alexandra Road, Hemel Hempstead, Hertfordshire  
TW3 4HP. Tel: (01) 579 8335

# COMPUSENSE SUMMER SALE

DASMINIEMON Centronics £14.99  
E28 + Centronics £14.99

## BARGAIN PACK for DRAGON DOS/CUMANA DOS

DASMINIEMON DRIVEMASTER/DRIVEMANU  
DYRAPEF HIREC/E28/E28+ all for £14.99

## SPECIAL BARGAIN PACKS for DRAGON FLEX

FILE EDITOR/ASSISTANT/LOGIC/SC  
DRYACALC/PARAP/TOP/CDL/BL  
DRYACALC/PARAP/E28/E28+  
FLEX UTILITIES/DRAGUT  
DIAGNOSTICS £25.99

## PROFESSIONAL BUSINESS SOFTWARE for OS-9

### THE MOST COMPREHENSIVE PACKAGE AVAILABLE FOR THE DRAGON

As originally commissioned by DRAGON DATA

Volume 1: Invoicing/Stock Control  
Volume 2: Sales Ledger/Purchase Ledger/Labeling  
Now dramatically reduced to only £29.99 each  
or £94.99 for both

## DRAGON HARDWARE

40MB expansion unit £165.00  
E28/OS9 program £15.99  
RS232C - 16C module £69.99  
Diskdrive PCMCIA £69.99

Disk Drive for your DRAGON — check with us for the best price — from diskettes with every disk drive

With drives (two pack) £16.99  
£16.99 for E28/OS9 for E28/OS9

CHAT COMBO — the complete system package for DRAGON FLEX/DRAGON or CHATPLUS  
+ CHAT/Ventana - £80.99/£89.99  
Modem DEMON (not E28 supported) £129.99  
RS232C (E28 supported) £129.99

DEMOM Master with cable and CHAT COMBO drives  
RS232C modem with cable and CHAT COMBO drives

DRAGONPLUS — the ultimate expansion for your DRAGON — £60 for E28 — £165.99 memory (RS232C)  
£165.99 for DRAGON DOS now includes software for DRAGONPLUS  
FLEX update disk £5.99 DRAGON DOS £1.99

Prices include VAT

PLEASE ADD £2.99 to all orders for  
Postage and Packing  
VISA/ACCESS/MASTERCARD/CHARGECARD  
credit cards accepted

Stocks of some items are limited —  
order now to avoid disappointment

## COMPUSENSE Ltd

PO Box 168, Fairview Green  
London N13 5EA



Fast mail order service  
Telephone orders on 01-882 0866/8866

